Damaging Wind & Hail

Straight-Line Wind

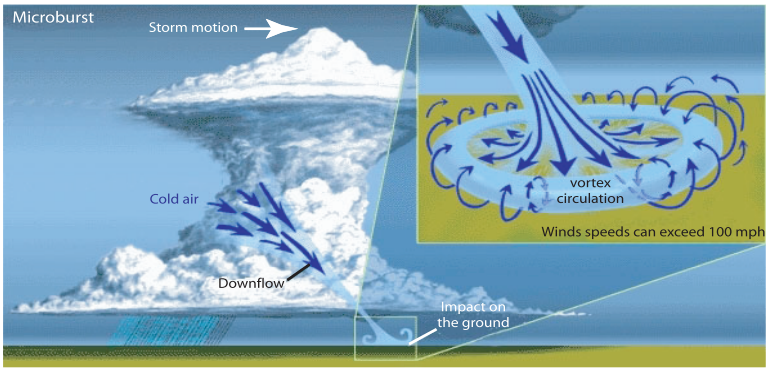
Each year in Alabama, damaging wind events occur ten to 20 times more often than tornadoes. Often times, initial storm reports erroneously attribute significant damage to tornadoes when actually strong, straight-line winds are responsible. Straight-line winds are damaging winds from a thunderstorm which are not associated with rotation. These winds can reach speeds above 100 mph with a damage path extending many miles. Trees and power lines can be knocked down. Mobile homes over turned. Well-built structures, such as homes and office buildings, damaged.

Montgomery (Montgomery Co.), May 8, 2008

A downburst is one type of damaging, straight-line wind, which typically occurs during the summer months in single-cell afternoon thunderstorms. Downbursts develop quickly and are very difficult to detect. They can occur with little or no advance notice and can be accompanied by a loud roar. As a result, downbursts are often mistaken as tornadoes. Wind speeds associated with downbursts usually exceed 60 mph and rarely exceed 100 mph. Microbursts, spatially small downbursts, can produce bursts of winds stronger than 100 mph.

The combination of warm, moist, unstable air near the surface and cold, dry air at mid levels of the atmosphere provides favorable conditions for downbursts to develop. When heavy precipitation falls in a thunderstorm, dense, rain-cooled air is pulled downward toward the ground. This downward rush of air creates a downburst. As the air impacts the ground, it spreads out laterally causing gusty winds. If the winds are strong enough, isolated areas of significant damage can occur.

Vrendenburgh (Monroe Co.), April 14, 2008



Hail

Northport (Tuscaloosa Co.), August 2, 2008

Although hail forms in every thunderstorm, it only reaches the ground if atmospheric conditions are favorable. Hail typically has the best chance of falling to the ground in springtime thunderstorms, when the atmosphere is colder, especially at mid and high levels. Hail may take on many different sizes and shapes, such as a thin flat penny or a baseball.

Large hail can be very dangerous. It can cause damage to objects, such as motor vehicles, structures, and trees. Bodily injuries, or even deaths, can result if people are caught outdoors when large hail occurs.